



US005686937A

United States Patent [19]**Li**[11] **Patent Number:** **5,686,937**[45] **Date of Patent:** **Nov. 11, 1997**

[54] **USER INTERFACE SYSTEM AND METHOD FOR CREATING AND REMOVING A SCROLLING ICON FROM A DISPLAY BASED UPON USER PAST AND PRESENT INTERACTION WITH THE ICON**

FOREIGN PATENT DOCUMENTS

61-296469 12/1986 Japan .
2-275495 11/1990 Japan .

OTHER PUBLICATIONS

[75] **Inventor:** **Shih-Gong Li**, Austin, Tex.

[73] **Assignee:** **International Business Machines Corporation**, Armonk, N.Y.

[21] **Appl. No.:** **413,973**

[22] **Filed:** **Mar. 29, 1995**

Related U.S. Application Data

[63] Continuation of Ser. No. 143,606, Nov. 1, 1993, abandoned.

[51] **Int. Cl.⁶** **G09G 5/34**

[52] **U.S. Cl.** **345/123; 345/121**

[58] **Field of Search** 345/119, 120,
345/123, 124, 125, 146, 902, 163; 395/155,
156, 157, 159, 161; 364/709.01, 709.1,
709.11, 710.7, 710.08, 710.09, 715.08

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,586,035	4/1986	Baker et al.	345/146
4,752,889	6/1988	Rappaport et al.	
4,813,013	3/1989	Dunn	
4,855,725	8/1989	Fernandez	345/173
4,885,699	12/1989	Taoda et al.	
4,899,292	2/1990	Montagna et al.	395/147
4,931,783	6/1990	Atkinson	345/163
5,062,060	10/1991	Kolnick	
5,091,866	2/1992	Takagi	
5,122,785	6/1992	Cooper	
5,196,838	3/1993	Meier et al.	345/121
5,237,651	8/1993	Randall	395/157
5,243,697	9/1993	Hoeber et al.	395/159
5,289,205	2/1994	Torres	345/124
5,339,391	8/1994	Wroblewski et al.	345/123
5,485,174	1/1996	Henshaw et al.	345/123
5,488,685	1/1996	Palmer et al.	395/159
5,500,929	3/1996	Dickinson	395/159
5,550,563	8/1996	Matheny et al.	395/159

M. A. Wilkes, "Scroll Editing—An On-Line Algorithm for Manipulating Long Character Strings", IEEE Transactions on Computers, vol. C-10, No. 11, Nov. 1970, pp. 1009-1015.

"Dynamic Time Bar with Editing Capabilities", IBM Technical Disclosure Bulletin, vol. 34, No. 8, Jan. 1992, pp. 384-385.

"Dynamic Sizing for Graphical Control Objects", IBM Technical Disclosure Bulletin, vol. 32, No. 9B, Feb. 1990, p. 85.

"Method to Dynamically Adjust a Scrolling", IBM Technical Disclosure Bulletin, vol. 28, No. 2, Jul. 1985, p. 856.

Primary Examiner—Richard Hjerpe

Assistant Examiner—Paul A. Bell

Attorney, Agent, or Firm—Robert M. Carwell

[57]

ABSTRACT

In response to user input from a computer pointing device such as a track ball, activation of an icon causes at least one pair of adjacent opposing scroll icons such as arrows to be dynamically created on opposing ends of a display screen. Subsequent selection of either of the arrows causes scrolling of contents of a window in a corresponding respective one of a pair of opposing directions. Required conventional pointing device movement is minimized when alternate scrolling in opposing directions is desired due to the dynamically created arrows being adjacent, whereby conventional traversal of a cursor over large display screen distances between opposing non-adjacent arrows is thereby avoided. In an alternate embodiment, space-apart scroll icons point in opposing directions, whereby activating either arrow dynamically creates an adjacent opposing arrow, thereby completing the arrow pair necessary to scroll in either direction.

12 Claims, 7 Drawing Sheets